Fetal adenocarcinoma of the lung in a 25-year-old woman

Fetal Adenocarcinoma of the Lung in a 25-Year-Old Woman

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Abstract: We report the case of a 25-year-old woman with a chance detection at x-ray of a well-defined mass in the right upper lobe during a medical examination. The patient suffered from a modest flu syndrome, with cough and fever. She was a current smoker. CT scan showed a homogeneous well-defined perihilar mass without calcifications, located in the right upper lobe and fully surrounded by aerated parenchyma. A right upper lobectomy with mediastinal lymph node sampling was performed. A pathologic diagnosis of well-differentiated fetal adenocarcinoma of the lung was made and staged as T2N0. Few cases of this type of malignancy have been reported in literature.

Key Words: Fetal adenocarcinoma, Lung cancer.

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In July 2007, a 25-year-old woman was referred to University of Turin, after a chance detection on chest x-ray of a well-defined mass in the right upper lobe during a medical examination for eligibility in the Italian army. The patient was a moderate, current smoker (10 cigarettes a day for 9 years). At the time of the medical visit, she reported a modest flu syndrome, with cough and fever.

Before the patient was referred to our hospital for examination, a computed tomography scan of the chest was performed, which demonstrated a homogeneous well-defined perihilar mass without calcifications located in the right upper lobe and fully surrounded by aerated parenchyma. No hilar or mediastinal node enlargement or additional parenchymal lesions were detected (Figures 1 and 2).

At the time of hospitalization, the results of the physical examination of the patient were completely normal. The fiberbronchoscopy performed the next day was completely normal, as well as pulmonary function tests and arterial blood gas analyses. A cardiologic examination including 12-channel electrocardiography excluded any contraindication to surgery. After having informed the patient, it was decided to proceed directly to surgical exploration and resection without performing additional investigations. A right upper lobectomy with mediastinal lymphnodal sampling was performed on July 12, 2007.

Gross examination revealed a single, white, 4-cm well-defined mass (Figure 3). At light microscopy, the tumor revealed sharp borders fully surrounded by normal lung tissue. The tumor was composed of well differentiated glands lined by a single row of columnar cells, with occasionally subnuclear vacuolization, resembling endometrial glands (Figures 4 and 5). Focal squamous metaplasia and a desmoplastic stroma with no immature cells were observed. The definitive diagnosis of well-differentiated fetal adenocarcinoma of the lung was made and pathologic staging was T2N0. Immunohistochemistry showed strong positivity for cytokeratin 8, 18 and beta-catenin expression, and was negative for estrogen and progesterone receptor, CEA, alpha-feto protein, cromogranin A, NSE, p-53, and S100.

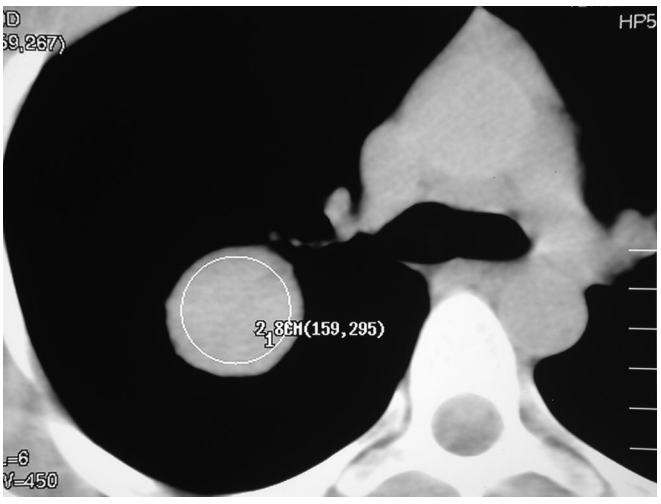

FIGURE 1. The chest computed tomographic scan shows a homogeneous well-defined perihilar mass without calcification in the right upper lobe.

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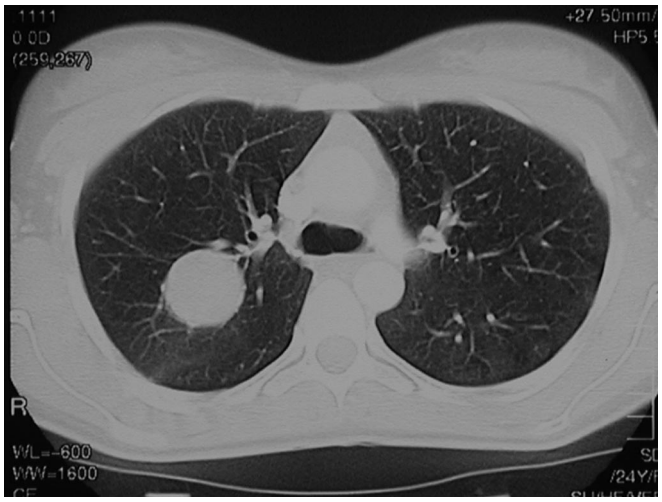

FIGURE 2. Baseline CT scan of the chest.

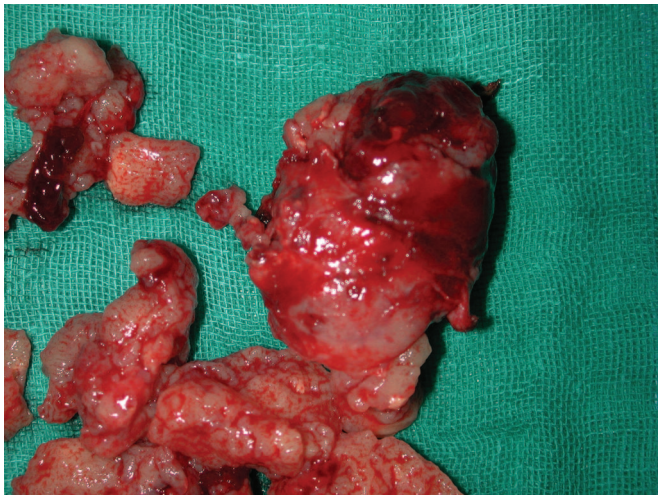

FIGURE 3. Intraoperative specimen. Fragmented mass with encephaloid features.

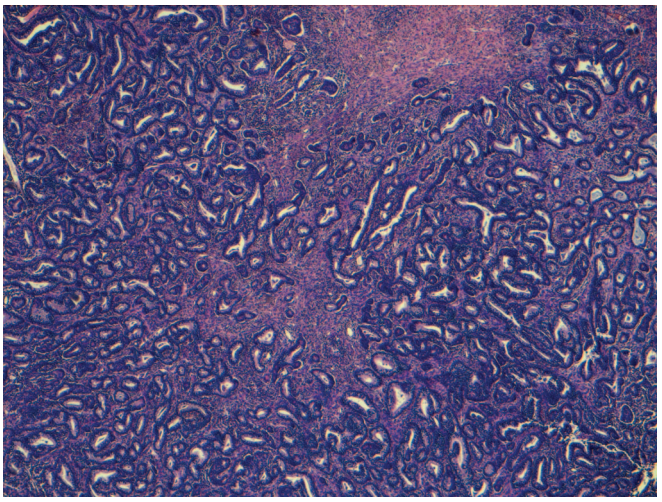

FIGURE 4. Fetal adenocarcinoma of the lung. At low magnification a growth of densely packed irregular glands, lined by columnar cells, in a cellular stroma is observed.

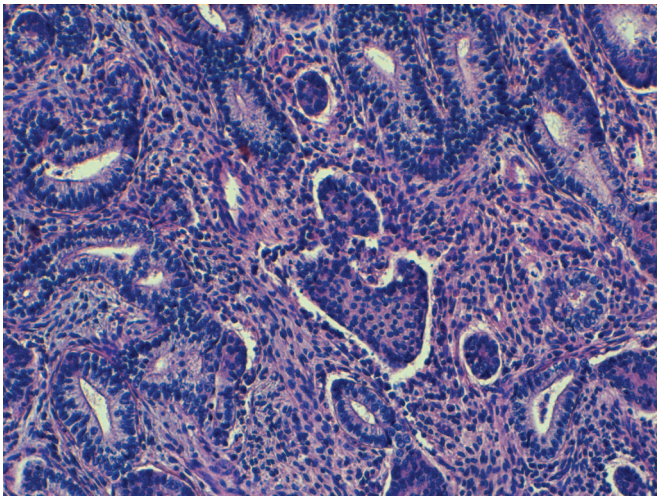

FIGURE 5. Fetal adenocarcinoma of the lung. Irregular glands are observed in a cellular pattern lacking atypia and made of elongated cells with bland nuclei. The glands are lined by columnar cells, with a basal partially polarized nucleus and scant mucinous cytoplasm. A central nest of squamoid looking cells is present.

DISCUSSION

Well-differentiated fetal adenocarcinoma is a rare type of lung tumor, first described by Koss et al. in 1991.[1] It appears as a fetal lung at 10 to 15 weeks of gestation, resembling pulmonary blastoma, but the adjacent mesenchymal tissue is histologically benign.[2]

In the current classification of lung tumors, the World Health Organization separated this tumor from the pulmonary blastoma category and it is now classified as a variant of adenocarcinoma with a good prognosis (ICD-O 8333/3).[3] No specific immunohistochemical pattern has been described for this tumor type.

There are few published reports describing this tumor.[4,5] It is generally detected in young subjects, and is clinically characterized by a low-grade malignancy and with a 5-year mortality rate of 15 to 20%.[6,7] Most of reported cases were coded as pathologic stage I, and the above-mentioned survival data are mainly related to this stage of disease. For the few patients reported with stage II or greater, no survival data has been published and adjuvant chemotherapy or radiotherapy have seldom been performed.

Based on current information about the disease, no additional treatment was recommended and the patient was discharged. In October (3 months after the surgical resection), a total body CT scan was negative. Follow up is planned for every 3 months for the first year, than every 6 months from the second to the fifth year, and then annually.

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